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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/737,132

12/16/2003

Tenny Sik-Keun Ho

THAB/03

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29140

7590

07/20/2006

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EXAMINER

FRISBY, KESHA

ART UNIT

PAPER NUMBER

3715

DATE MAILED: 07/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/737,132	Applicant(s) HO, TENNY SIK-KEUN	
	Examiner Kesha Frisby	Art Unit 3715	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/16/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 1 & 2 are objected to because of the following informalities: In claims 1 & 2, please delete the comma and insert "and an" before "electrical control". In claim 2 line 18, "sliding motions sequence" should be --sliding motion sequences--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Wood et al. (U.S. Publication Number 2002/0197589).** Referring to claim 1, Wood et al.

discloses an abacus having plurality of counter beads slidably mounted on guide bars and operative slidably with up and down movements on said guide bars for carrying out mathematical calculations (paragraph 0023), motion sensor located below said abacus and operative for detecting movements of said counter beads and generating a series of electrical signals representing sequence of said up and down movements (paragraph 0025) and an electrical control and conversion circuit means connected to said motion sensor and operative by said electrical signals and in combination with a

Art Unit: 3715

microprocessor for converting said electrical signals to digital data signals (paragraph 0030).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 2 & 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood et al. in view of Lee (KR 2003043898 A: the English translation was used).**

Referring to claim 2, Wood et al. discloses an abacus having a plurality of counter beads slidably mounted on guide bars and operative for carrying out mathematical calculations (paragraph 23), a plurality of motion sensors mounted on a components board located below said abacus (paragraph 0025) and an electrical control and conversion circuit means adapted at said components board and operative in association with a microprocessor for converting said electrical signals to digital data signals (paragraph 0030). *Wood et al. does not disclose baffle members mounted on said counter beads and extending downwards therefrom to said sensors, and operative to interact with said sensor to generate a series of electrical signal representing up and down sliding motions sequences of said counter beads along said guide bars.*

However, Lee baffle members mounted on said counter beads and extending downwards therefrom to said sensors, and operative to interact with said sensor to generate a series of electrical signal representing up and down sliding motions

sequences of said counter beads along said guide bars (Abstract: Novelty and Detail Description). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include baffle members, as disclosed by Lee, incorporated into Wood et al. in order to detect the movement of the beads.

Referring to claim 3, Wood et al., as modified by Lee, teaches including a computing device having a display monitor adapted to receive and process said digital data signals for displaying a pictorial representation on said display monitor of said abacus and movements of said counter beads during operation of said abacus for mathematical calculation (Detailed Description of Lee).

6. **Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood et al./Lee and further in view of Chizuko (JP2127712: the English translation was used).** Referring to claim 4, Wood et al./Lee discloses a mathematical training system according to Claim 3 and said baffle members are baffle panels mounted on said counter beads and extending from each counter bead to said air gap of an associated sensor located directly below said each counter bead (Abstract: Novelty and Detail Description of Lee). *Wood et al./Lee does not disclose wherein said sensors include a light emitting portion and a light receiving portion situated opposite to one another with an air gap located therebetween,* However, Chizuko teaches wherein said sensors include a light emitting portion and a light receiving portion situated opposite to one another with an air gap located therebetween (abstract and Figure). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein said sensors include a light emitting portion and a light

Art Unit: 3715

receiving portion, as disclosed by Chizuko, incorporated into Wood et al./Lee in order to provide light-sensitive sensors at the positions where the abacus beads are stopped.

Referring to claim 5, Wood et al./Lee et al., as modified by Chizuko, discloses wherein said baffle panels is normally located in said air gap of each sensor for blocking the light from said emitting portion of said sensor from impinging on said light receiving portion, and said baffle panels sequentially blocking and unblocking said light when said counter beads are operated slidably up and down said guide bars during the mathematical calculation whereby said electrical signals are generated by said sensors (abstracts of Lee and Chizuko).

Referring to claim 6, Wood et al./Lee et al., as modified by Chizuko, discloses including an output port located on said components board and adapted for electrical connection with said computing device for transferring said digital data signals to said computing device for displaying a pictorial representation of the operation of the abacus in a monitor display (Fig. 2 & paragraphs 0037-0039 of Wood et al.).

7. Claims 7 & 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood et al./Lee/Chizuko and further in view of Henderson (U.S. Patent Number 6,712,614). Referring to claim 7, Wood et al./Lee et al./Chizuko discloses a mathematical training system according to Claim 6. *Wood et al./Lee et al./Chizuko does not disclose including recording means adapted for recording said digital signals whereby the operation of the abacus by a student for solving an mathematical assignment is retrievable by an instructor to review the operation of the abacus step by step by the student for solving the mathematical assignment.* However, Henderson

Art Unit: 3715

teaches including recording means adapted for recording said digital signals whereby the operation of the abacus by a student for solving an mathematical assignment is retrievable by an instructor to review the operation of the abacus step by step by the student for solving the mathematical assignment (column 4 lines 36-44). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include recording means in order to implement each abacus step of a mathematical operation.

Referring to claim 8, Wood et al./Lee et al/Chizuko, as modified by Henderson, teaches wherein said monitor display shows pictorial representation of both the operation of the instructor's abacus and the operation the student's abacus (column 6 lines 18-30 of Henderson).

Citation of Pertinent Prior Art

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Son Bum Suk (WO 200506167 A1) teaches an apparatus for detecting moves of counter for electric abacus.

Horie (U.S. Patent Number 4,629,429) teaches an abacus with each counter held in position by friction or magnetic attraction.

JP 11119896A teaches an abacus type input device, abacus practice device and network of the same.

Lee (KR 2003021208 A) teaches an electronic abacus.

Art Unit: 3715

Lee (KR 2003021207 A) teaches a device for verifying calculation result through movement recognition of abacus.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kesha Frisby whose telephone number is 571-272-8774. The examiner can normally be reached on Mon. - Wed. 7-3pm, Thu. 6:30-4pm & Fri. 7-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Olszewski can be reached on 571-272-6678. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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